Koch, Kristine

From: Shephard, Burt
Sent: Wednesday, February 18, 2015 5:46 PM
To: Kevin Parrett; Tom Gainer (gainer.tom@deq.state.or.us)
Cc: Koch, Kristine; Alex Liverman (liverman.alex@deq.state.or.us); Matt McClincy (mcclincy.matt@deq.state.or.us); Jennifer Peterson; poulsen.mike@deq.state.or.us
Subject: FW: Benthic Toxicity PRGs for Portland Harbor
Attachments: AQ_RALonlyComparison_20140513.pdf; EPA Interpolation Methodology.docx

Kevin, Tom,

In a message on February 10, 2015, Tom Gainer of ODEQ requested that Kristine Koch of EPA send maps illustrating sediment management areas (SMA's) for benthic risk areas identified in the Portland Harbor feasibility study. Tom also requested the dates the maps were created. The e-mail chain leading to this ODEQ request is appended to the end of this message.

This e-mail message constitutes a re-transmission to ODEQ of the maps requested by Tom Gainer in his message of February 10th.

ODEQ originally received the benthic toxicity maps requested by Tom Gainer at the same time as did the rest of the TCT. Specifically, the maps requested by Tom were originally sent to ODEQ in an e-mail message from Kristine Koch to the entire Portland Harbor TCT on May 15, 2014 at 10:24 am. ODEQ recipients of Kristine's May 15, 2014 e-mail and its attachments were the following individuals:

- Tom Gainer
- Alex Liverman
- Matt McClincy
- Jennifer Peterson
- Mike Poulsen

The e-mail chain leading up to the May 15, 2014 message from Kristine transmitting the maps to ODEQ is also appended to the end of this message. The oldest PDF file I have of the maps attached to this message is dated May 13, 2014. I suspect, but do not know for certain, that the original ArcInfo versions of the maps may have been prepared a few days prior to May 13, 2014.

As neither Kristine or I are GIS experts, also attached is a short Word file describing the EPA approach to GIS interpolation of areas from multiple lines of evidence that combined define areas potentially subject to remediation under the different FS alternatives. Although not specific to the benthic toxicity layers, the text should provide an introduction to EPA's GIS mapping approach. Detailed questions on GIS procedures should be directed to either Todd King of CDM, Amanda Shellenberger of Anchor QEA, or Matt Gubitosa of EPA.

This is at least the fourth time EPA has had to retransmit e-mail messages with their attached files to ODEQ regarding the derivation or mapping of ecological risk PRGs for Portland Harbor to the ODEQ. In all previous occasions, EPA has been able to document that ODEQ had already received the information EPA was asked to send. As is the case for ODEQ, EPA staff also have limited availability to work on any specific site, including Portland Harbor. Finding and retransmitting messages and files that ODEQ has already received is not an efficient use of EPA staff time. Although we all occasionally lose track of files, in the future we request that ODEQ review their own stored records to identify information and files before asking EPA to resend previously transmitted information to ODEQ.

Best regards,

Burt Shephard
Risk Evaluation Unit
Office of Environmental Assessment (OEA-095)
U.S. Environmental Protection Agency, Region 10
1200 6th Avenue
Seattle, WA 98101

Telephone: (206) 553-6359
Fax: (206) 553-0119

e-mail: Shephard.Burt@epa.gov

"Facts are stubborn things"
- John Adams

From: Koch, Kristine
Sent: Tuesday, February 17, 2015 9:10 AM
To: Shephard, Burt
Subject: FW: Benthic Toxicity PRGs

Burt – can you provide Tom with the appropriate reference?

Thanks,

Kristine Koch
Remedial Project Manager
USEPA, Office of Environmental Cleanup

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From: GAINER Tom [mailto:GAINER.Tom@deq.state.or.us]
Sent: Tuesday, February 10, 2015 2:06 PM
To: Koch, Kristine; Shephard, Burt
Cc: MCCLINCY Matt; PETERSON Jenn L
Subject: RE: Benthic Toxicity PRGs

Kristine-
We'd like to make sure we know what figures you are referring to in the highlighted section below, so could you please send me those referenced figures and confirm when they were created?

Thanks-
Tom

From: Koch, Kristine [mailto:Koch.Kristine@epa.gov]
Sent: Saturday, February 07, 2015 4:43 PM
To: GAINER Tom; Shephard, Burt

Cc: MCCLINCY Matt; PETERSON Jenn L
Subject: RE: Benthic Toxicity PRGs

Tom – Thanks for providing DEQ's expressed concerns. EPA is already working on updating the discussion of the benthic risk area development for the SMAs as part of section 3. I'm not clear on your issue number 2, but maybe as DEQ sees how the project progresses, your issues will be less of a concern. EPA is not drafting figures of benthic risk based on the PRGs for the FS. EPA and LWG have developed updated SMAs for benthic risk; these have been provided to DEQ. EPA is preparing figures exceeding all human health PRGs and all ecological PRGs to present in Section 2. There may be some figures in the BERA that may help you in determining areas exceeding benthic risk.

If you would like to discuss this further, we can discuss at the EPA/DEQ meeting next Wednesday.

Regards,

Kristine Koch
Remedial Project Manager
USEPA, Office of Environmental Cleanup

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From: GAINER Tom [mailto:GAINER.Tom@deq.state.or.us]
Sent: Thursday, February 05, 2015 8:41 AM
To: Koch, Kristine; Shephard, Burt
Cc: MCCLINCY Matt; PETERSON Jenn L; GAINER Tom
Subject: RE: Benthic Toxicity PRGs

Kristine and Burt-
Thanks for providing your explanations below. While it sheds some light on our questions, DEQ has remaining concerns and the following comments:

1. DEQ understands that the benthic toxicity risk layer developed by EPA for the FS did not use the numeric PRG values in the draft PRG table. While your email provides an overview of the process, it does not provide a number of the important details. DEQ asks that the criteria used to map the benthic toxicity footprint be clearly described in FS Section 3 and how the criteria relate to identifying areas that may exceed bioassay toxicity endpoint PRGs listed in the table. A write up similar to the LWG's comprehensive benthic approach is requested.
2. DEQ cannot comment on the benthic toxicity sediment PRGs without understanding how they will be used/applied and how they relate to the benthic toxicity risk layer (above). Consequently, DEQ considers the benthic toxicity sediment PRGs an open issue until we have more information.
3. DEQ requests that figures be prepared comparing the Section 2 benthic toxicity sediment PRGs footprint with the footprint used in FS Section 3. Once this is done, DEQ will have a better understanding if the benthic toxicity sediment PRGs reasonably match up with the benthic toxicity risk layer footprint and can be used to predict post-remedy acceptable risk (i.e., are protective).

Let's discuss the timing and need for a follow-up meeting to resolve these issues.

Thanks-

Tom

From: Koch, Kristine [mailto:Koch.Kristine@epa.gov]
Sent: Monday, February 02, 2015 2:41 PM
To: PETERSON Jenn L; Shephard, Burt
Cc: GAINER Tom; MCCLINCY Matt
Subject: RE: Benthic Toxicity PRGs

Jenn – I consulted with Burt and we prepared this response together. First, I want to state the EPA is not doing something new or different from what was done in the final BERA. The LWG followed an older process in their draft FS to develop benthic risk areas for remediation. What EPA did was use the approach used in the final BERA to make sure the FS areas of benthic risk were more accurately portrayed. In our review of the draft FS, we noted that there were some benthic risk areas based on the results of the BERA that the LWG didn't identify in their benthic risk areas in the draft FS. Burt and Chip did a thorough review, which included overlaying BERA maps from its various lines of evidence for benthic risk to the LWG proposed maps of benthic risk areas in their draft of the FS. We have already discussed this with the LWG and they have updated those mapping layers for the draft final FS. Those mapping layers are part of Section 3 development of the alternatives, not section 2, since they are depiction remedial action areas and not used for development of PRGs. EPA is still developing Section 3 text and anticipates providing that text to the TCT in March.

EPA is not using either the LRM or FPM in the FS. Those models were used in the BERA and all areas that had predicted toxicity from either model, or empirically measured toxicity are included in the benthic risk layer of the FS. All alternatives include the benthic risk layer, so all areas of benthic risk identified in the final BERA are being remediated in the FS. Thus, there is no reason for any additional use of the LRM or FPM in the FS beyond their use to define benthic risk areas in the BERA. There have been no modifications to either the FPM or LRM in the FS during the delineation of the benthic risk area; the model predictions used in the FS to define benthic risk areas are unchanged from their predictions in the BERA.

PRGs for benthic toxicity is really limited to the narrative criteria in the table. We also included chemical specific numeric PRGs for benthic organisms based on the individual chemical sediment quality values that were derived from the LRM in BERA (Table 6-11). Although there are technical issues with using the sediment quality values derived from the LRM as individual chemical benchmarks, as opposed to their intended use as part of models designed to estimate the magnitude of toxicity to benthic species from the mixture of chemical concentrations at a site, in reality the individual chemical benchmarks from the models are often used just that way. In short, the chemical specific values in the PRG tables are not used in the LRM or FPM to develop Sediment Management Areas in Section 3. Further, none of the LRM values were selected as the representative PRG for RAO 5, with the exception of TBT.

The maps you appear to be asking for also exist in the BERA. The predicted toxicity LRM Pmax values for all 1400+ sediment chemistry stations are plotted in Map 6-11 of the BERA map folio, while the moderate (Level 2, Pmax of 0.50) and severe (Level 3, Pmax of 0.59) toxicity predicted by the FPM for each of the four toxicity endpoints (Chironomus survival and biomass, Hyalella survival and biomass) are plotted in Maps 6-7 to 6-10, respectively. The probable effect concentration (PEC) maximum concentration and PEC mean quotient values are plotted in BERA Maps 6-18 and 6-20, respectively. All of these BERA maps describe areas of predicted benthic risk and were used as part of the process which defined benthic risk areas in the FS. As stated earlier, neither the LRM or FPM as developed for the BERA were modified in the FS. Finally, the empirical sediment toxicity data itself is plotted in BERA Maps 6-2 (Chironomus survival), 6-3 (Chironomus biomass), 6-4 (Hyalella survival) and 6-5 (Hyalella biomass). All of the final BERA maps plot information for each individual sediment sampling station, they do not attempt to use GIS to extrapolate toxicity or lack of toxicity to the rest of the site without samples, although we have some older GIS maps from Parametrix that use nearest neighbor extrapolation to show contour plots of sediment chemistry and toxicity. None of the BERA maps, of course, show boundaries of SMAs, as these boundaries are not defined in the BERA.

Regarding your question in the last paragraph on post-remediation evaluations, we have not thought much about that beyond comparisons of site contaminants post-remedy to the PRGs, assuming the PRGs become the actual remedial goals for the site, and accounting for MNR. These evaluations will be in Section 4 of the FS, but those decisions on post-remedy PRGs will not be determined until the proposed plan/ROD. Pose-remedial evaluation methods will not be part of the FS.

I hope this answers your questions. Please let us know if you still do not understand and maybe we can set up a special meeting to discuss.

Regards,

Kristine Koch
Remedial Project Manager
USEPA, Office of Environmental Cleanup

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From: PETERSON Jenn L [mailto:PETERSON.Jenn@deq.state.or.us]
Sent: Thursday, January 29, 2015 2:33 PM
To: Shephard, Burt
Cc: Koch, Kristine; GAINER Tom; MCCLINCY Matt
Subject: Benthic Toxicity PRGs

Hi Burt,

I wanted to follow up on our conversation yesterday regarding evaluations of benthic toxicity in the FS. I had a few follow up questions for you.

It was indicated that EPA used the benthic predictive models to define areas of concern in the FS and not the PRGs identified for benthic toxicity in Section 2. However, it was also noted that EPA did not use the LWGs "Comprehensive Benthic Approach" from the FS. Could you describe what predictive model or combination thereof was used? Specifically, which models of LRM or FPM were used? For example, something like "FPM Level 2 hits for the 4 test endpoints and the LRM PMax of 0.50 (developed to predict level 2 hits – e.g. map 6-11 in the BERA)". Since these models were used to identify areas with unacceptable probability of toxicity, consider making this explicit in the form of a PRG that describes "unacceptable probability of toxicity". This could be described as (for example) "a maximum probability of 50% of observing Level 2 sediment toxicity (Pmax of 0.50)". Areas corresponding to a Pmax of 50 were identified as areas of concern; additionally, toxicity based PRGs apply". I am not sure if predictive / measured benthic toxicity PRGs would be better described as a separate RAO or not – what do you think of this?

In my mind, the sediment benchmarks EPA identified in Section 2 could be included in addition to the predictive / toxicity PRGs as "necessary numeric PRGs due to the uncertainty in relying on Site specific models to identify bulk sediment criteria associated with causative links to observed toxicity". If EPA has plotted areas of unacceptable probability of toxicity based on these benchmarks (exceedance of any one), it would be great to see how they line up with the Site specific predictive models discussed above.

Based on this, DEQ would like to review 1) the specific models that were used to map areas of unacceptable probability of toxicity and 2) the associated maps . Would it be possible to provide this information? Additionally, it would help to

clarify what criteria / models are being used for PRGs for post-remediation evaluations. DEQ believes the 2 approaches should be the same, which was at the heart of the back and forth conversation yesterday. If EPA used the models to define areas of unacceptable probability of toxicity, then consider that these should also be used (potentially in combination with the proposed sediment SQVs) post remedy to determine if any of these area remain.

Please let me know if it would be better to discuss on the phone, and thanks for the discussion yesterday.

Jennifer

From: King, Todd W. [mailto:KingTW@cdmsmith.com]
Sent: Thursday, May 15, 2014 12:21 PM
To: Koch, Kristine; Shephard, Burt; Allen, Elizabeth
Cc: Sheldrake, Sean; Penoyar, Susan; Blischke, Eric; Peterson, Lance; Mullin, Jeanette; Rood, Stephen; Gustavson, Karl
Subject: RE: Portland Harbor - Action Items From May 8 FS Technical Meeting

From what I can see, they have added only, no reductions in area.

New total is 61.3 acres vs. 55.5 acres from the orig FS comprehensive benthic risk layer. We'll put together a new vs. old table in terms of acres for each alternative if useful.

If we think this is final, Steve and I will have to re-run through the cookie factory to re-generate the EPA Alternative footprints.

Are we waiting for ODEQ buy-in or what path are we taking to finalize this?

Thanks,

TK

From: Koch, Kristine [mailto:Koch.Kristine@epa.gov]
Sent: Thursday, May 15, 2014 3:13 PM
To: Shephard, Burt; Alex Liverman (liverman.alex@deq.state.or.us); Allen, Elizabeth; Audie Huber (audiehuber@ctuir.com); Bob Dexter; Brian Cunninghame (cunninghame@gorge.net); callie@ridolfi.com; Conley, Alanna; Erin Madden (erin.madden@gmail.com); Fuentes, Rene; Gail Fricano (gfricano@indecon.com); Genevieve Angle (Genevieve.Angle@noaa.gov); Holly Partridge (Holly.Partridge@grandronde.org); JD Williams (jd@williamsjohnsonlaw.com); peterson.Jennifer@deq.state.or.us; Jeremy_Buck@fws.gov; Julie Weis (jweis@hk-law.com); Matt Johnson (matt@williamsjohnsonlaw.com); Matt McClincy (mcclincy.matt@deq.state.or.us); Michael.karnosh@grandronde.org; poulsen.mike@deq.state.or.us; Muza, Richard; rdelvecchio@indecon.com DelVecchio; Robert.Neely@noaa.gov; rose@yakamafish-nsn.gov; Ryan Sudbury (Ryan.Sudbury@grandronde.org); Sheldrake, Sean; Penoyar, Susan; King, Todd W.; tomd@ctsi.nsn.us; Tom Gainer (gainer.tom@deq.state.or.us)
Subject: RE: Portland Harbor - Action Items From May 8 FS Technical Meeting

Thanks Burt. We don't have numbers on acreage differences yet, but we'll be looking at that as we develop the optimized alternatives.

Kristine Koch
Remedial Project Manager
USEPA, Office of Environmental Cleanup

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From: Shephard, Burt
Sent: Thursday, May 15, 2014 11:50 AM
To: Koch, Kristine; Alex Liverman (liverman.alex@deq.state.or.us); Allen, Elizabeth; Audie Huber (audiehuber@ctuir.com); Bob Dexter; Brian Cunninghame (cunninghame@gorge.net); callie@ridolfi.com; Conley, Alanna; Erin Madden (erin.madden@gmail.com); Fuentes, Rene; Gail Fricano (gfricano@indecon.com); Genevieve Angle (Genevieve.Angle@noaa.gov); Holly Partridge (Holly.Partridge@grandronde.org); JD Williams (jd@williamsjohnsonlaw.com); peterson.Jennifer@deq.state.or.us; Jeremy_Buck@fws.gov; Julie Weis (jweis@hk-law.com); Matt Johnson (matt@williamsjohnsonlaw.com); Matt McClincy (mcclincy.matt@deq.state.or.us); Michael.karnosh@grandronde.org; poulsen.mike@deq.state.or.us; Muza, Richard; rdelvecchio@indecon.com DelVecchio; Robert.Neely@noaa.gov; rose@yakamafish-nsn.gov; Ryan Sudbury (Ryan.Sudbury@grandronde.org); Sheldrake, Sean; Susan J. Penoyar (PenoyarSJ@cdm.com); Todd King (KingTW@cdmsmith.com); tomd@ctsi.nsn.us; Tom Gainer (gainer.tom@deq.state.or.us)
Subject: RE: Portland Harbor - Action Items From May 8 FS Technical Meeting

First impression, based on the benthic toxicity RAL: The overlap between the draft FS and our benthic toxicity is good for the most part. New areas that show up using the updated EPA benthic toxicity approach are primarily as follows:

River mile 4, west bank (both EPA and LWG have known about this area for some time now not being included in the draft FS, no real surprise here)
River mile 7+, Arkema and Willbridge area, west bank. This area looks like it has roughly doubled in size using the updated EPA benthic tox approach
River mile 8, mouth of Swan Island lagoon. Expansion of area at the shipyard. No surprise to EPA, not sure what LWG thinks of this.

Do we have any quantitative estimates of surface area possibly subject to remediation yet? I know depths and volumes are coming, not ready yet, but without going back and looking at the benthic toxicity contour plots, I'm not seeing any real surprises here based on an admittedly initial glance at the map.

Best regards,

Burt Shephard
Risk Evaluation Unit
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Fax: (206) 553-0119

e-mail: Shephard.Burt@epa.gov

"Facts are stubborn things"
- John Adams

From: Koch, Kristine
Sent: Thursday, May 15, 2014 10:24 AM
To: Alex Liverman (liverman.alex@deq.state.or.us); Allen, Elizabeth; Audie Huber (audiehuber@ctuir.com); Bob Dexter; Brian Cunninghame (cunninghame@gorge.net); callie@ridolfi.com; Conley, Alanna; Erin Madden

(erin.madden@gmail.com); Fuentes, Rene; Gail Fricano (gfricano@indecon.com); Genevieve Angle (Genevieve.Angle@noaa.gov); Holly Partridge (Holly.Partridge@grandronde.org); JD Williams (jd@williamsjohnsonlaw.com); peterson.Jennifer@deq.state.or.us; Jeremy_Buck@fws.gov; Julie Weis (jweis@hk-law.com); Matt Johnson (matt@williamsjohnsonlaw.com); Matt McClincy (mcclincy.matt@deq.state.or.us); Michael.karnosh@grandronde.org; poulsen.mike@deq.state.or.us; Muza, Richard; rdelvecchio@indecon.com DelVecchio; Robert.Neely@noaa.gov; rose@yakamafish-nsn.gov; Ryan Sudbury (Ryan.Sudbury@grandronde.org); Sheldrake, Sean; Shephard, Burt; Susan J. Penoyar (PenoyarSJ@cdm.com); Todd King (KingTW@cdmsmith.com); tomd@ctsi.nsn.us; Tom Gainer (gainer.tom@deq.state.or.us)
Subject: FW: Portland Harbor - Action Items From May 8 FS Technical Meeting

All – Here is a comparison of the footprints of the LWG's RALs vs. EPA's RALs using the LWGs interpolation method.

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From: Jennifer Woronets [mailto:jworonets@anchorqea.com]
Sent: Wednesday, May 14, 2014 4:18 PM
To: Koch, Kristine
Cc: Jennifer Woronets; Carl Stivers; Amanda Shellenberger; Jim McKenna (jim.mckenna@verdantllc.com); Patty Dost; Bob Wyatt; Sheldrake, Sean; King, Todd W.
Subject: FW: Portland Harbor - Action Items From May 8 FS Technical Meeting

Kristine,

Please see below and attached from Amanda.

Let us know if you have any questions.

Thank you,
Jen Woronets ☺
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jworonets@anchorqea.com
421 SW Sixth Avenue, Suite 750
Portland, OR 97204
503-972-5014

From: Amanda Shellenberger
Sent: Wednesday, May 14, 2014 4:05 PM
To: Jennifer Woronets
Cc: Carl Stivers
Subject: RE: Portland Harbor - Action Items From May 8 FS Technical Meeting

Kristine and Team –

Per action item #2 under the SMA-related action items, the attached maps show a comparison of EPA RALs versus LWG RALs using LWG mapping techniques. Also, per action item #3, we are sending the EPA RAL chemicals GIS layers (mapped using LWG mapping techniques) to Todd King so that he can de develop a map comparing LWG mapping techniques to EPA's mapping techniques.

SMAs

1. LWG Action Item – Prepare simple RAL maps that shows all the draft FS SMAs without CDFs present.
    - Sent last week
2. LWG Action Item - Compare mapping of EPA RAL chemicals to LWG RAL chemicals maps using LWG mapping techniques.
    - Attached
3. LWG Action Item - Take the EPA RAL chemicals map layer from previous map and send that layer to Todd. He will develop a map comparing LWG mapping techniques to EPA's mapping techniques.
    - Sent to Todd in separate email
4. LWG Action Item – Provide existing subSMA pixel map comparison from April 24th meeting.
    - Sent last week.

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